

MONTHLY
MICROCLIMATIC SUMMARY

NOVEMBER 1967

ENVIRONMENTAL DATA BASE FOR REGIONAL STU TES IN THE HUMID TROPICS

USATECOM Project No. 9-4-0013-01

US ARMY TROPIC TEST CENTER Fort Clayton, Canal Zone

Sponsored by

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NOVEMBER 1967

Prepared by

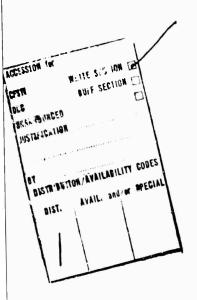
Michael A. Fradel, Project Officer and Dr. Wilfried H. Portig, Metrorologist

USATECOM Project No. 9-4-0013-01

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Conducted by

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Tropic Test Center
Fort Clayton, Canal Zone
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Chiva)	

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MONTHLY MICROCLIMATIC SUMMARY

Introduction

Monthly microclimatic data summarized in this series of reports were collected by the US Army Tropic Test Center and the Westher Engineers of Panama Corporation under the project, Environmental Data Base for Regional Studies in the Humid Tropics. The project is sponsored by the Advanced Research Projects Agency of the Department of Defense and by the Army Research Office, Office of the Chief of Research and Development. It is an investigation of microclimatic, air chemistry, vegetation, soils, microbiological, and macrofaunal conditions at selected sites in the principal tropical environments of the Panama Canal Zone and the Rio Hato Military Reservation. The objective of the project is to assemble quantitative environmental data for RDT&E purposes.

Sites. Data summarized in this report were collected at the Albrook Forest and Chiva Chiva sites. Figure 1 shows the site locations within the Isthmus of Panama. Geographic coordinates are shown below:

Albrook Forest	09°	Ol'N,	7 9°	33"#
Chiva Chiva	09°	01'N,	79°	35'W

The Chiva Chiva open site and the Albrook Forest site are paired for comparative study of environmental conditions in a tropical semideciduous forest and in a large clearing. Both are located in a region where the annual precipitation is approximately 80 inches and there is a pronounced dry season. The other satellite sites were located primarily for soil studies purposes. Albrook and Fort Kobbe have climatic regimes similar to the principal sites.

The Albrook and Chiva Chiva main sites are approximately four kilometers apart. Each has a 46 meter walk-up tower and an air-conditioned building to house the recording equipment and observers. Both sites are approximately 30 meters above sea level. The top of the forest canopy at the Albrook site is about 26.5 meters above the ground.

Instrumentation. A wide range of climatic elements are measured at the Albrook and Chiva Chiva sites. Types of observations and frequencies are shown on Figure 2. The towers at the Albrook and Chiva Chiva sites are similarly oriented. Sensing equipment is mounted at several levels on the towers to provide measurements through the vertical profile. Additional instruments are emplaced in the immediate vicinity on or near the ground. All instrument exposures are duplicated at each site. Figures 3, 4, and 5 show the instrument array at these sites.

Data Reduction and Storage. All data, as applicable, are recorded at or reduced to each full hour and transposed to punch cards. These punch cards, together with all rew data, are stored in the Tropic Test Center Technical Library Annex.

The relative humidity data contained in this report required some adjustment due to the difficult problems in maintaining hair hygrometers in the humid tropics. The hygrometers show saturation at a time when the psychrometer shows a relative humidity well below 100%. For this reason the hourly measurements made by means of a hair hygrometer have been modified on the basis of simultaneous psychrometer readings of other levels. Details will be given in the fourth Semiannual Report. It can be assumed that the means of relative humidity presented in this volume are very close to the true means.

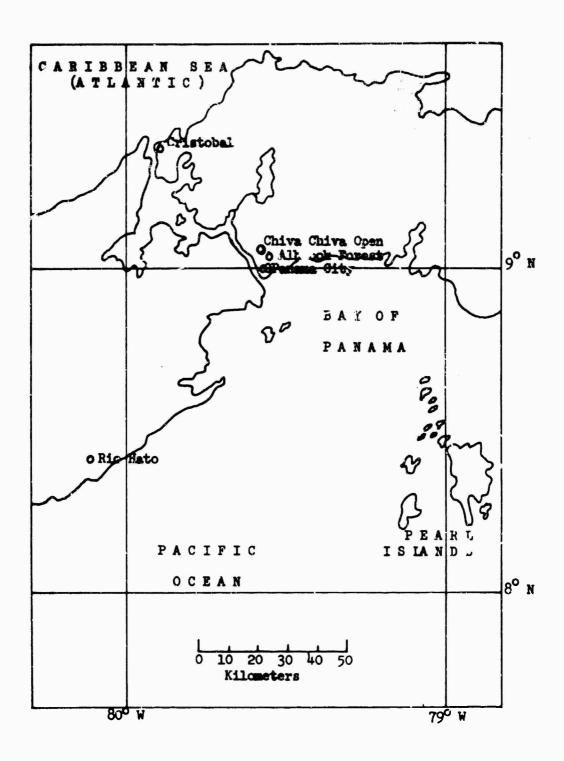


FIGURE 1. LOCATION MAP, ISTHMUS OF PANAMA

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^{1.} Albrook and Chiva Chiva 2. Albrook only 3. Chiva Chiva chiva only

^{*} Observation ande with sling psychrometer when recorders are inoperative.

Instrument descriptions are contained in the Environmental Data Rose semiannual reports.

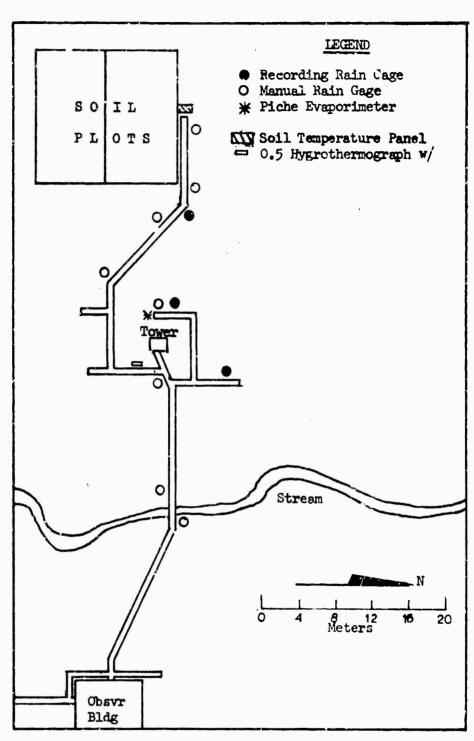


FIGURE 3.
ALBROOK FOREST SITE, GENERALIZED PLOT

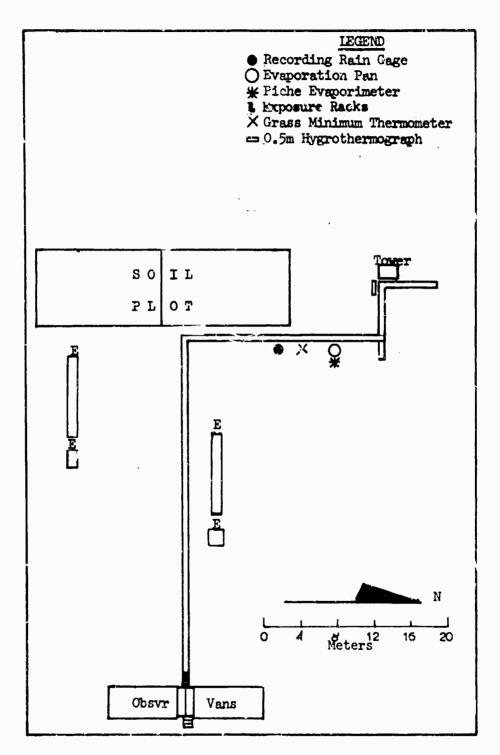


FIGURE 4.
CHIVA CHIVA OPEN, GENERALIZED . OT

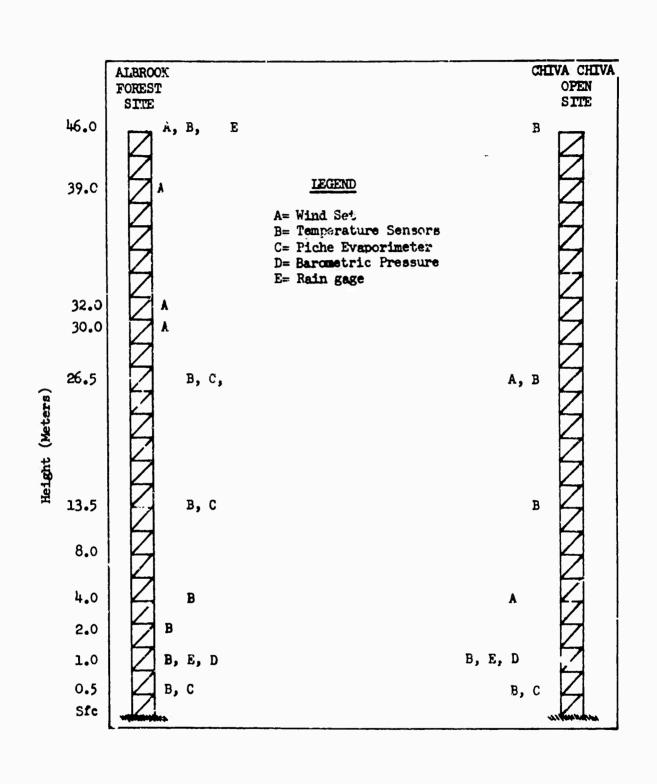


FIGURE 5. INSTRUMENT LOCATION ON TOWERS

HOURLY DATA

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	10	13		4	7		÷			
sure	Level	46.0 m	28.5 m	26.5 m	13.5m	E c w	<u></u>	E	i. : :	fi co z
Exposure	Site			(9)		910.[]	140.1	HM		•

* No monthly summary was computed for the ranges.

									
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	19 16 17 16		12	11					
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	Liu,	micity	1	33	midity	miduty	midity.	midity	2.5
	37	cel was a teastranearted for reletive humietry at this time	3.2		less) was not instructented for relative humidity at this time	legel was not instrumented for relative humidity at this time	leselas et matrumented for relative bumidity at this time	order of a strat aboutor relative humaday at this time	7
	د د	or rela	31	3.3	er rela	er rela	or rela	or relat	ĵ.
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	x.	Structor	1	7	strus e	1	Strum.	itr.:	
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HOURLY DATA NOVEMBER 1967

	āx.		0.	.5.	9.	091	43 82 69	
aary	Mean Max.		66.8 74.7 80.0	69.5 75.1 80.5	3 80.6	11 . 850	0.01 9.83 1.43 0.01 4.70 0.82 0.01 4.40 0.69	
. Sum			74.	5,75.	69.5 75.3	.620 .741	11 9 . 8 4 . 4 4 . 4	
Monthly Sum aary	No of Min.			.69	.69	.62	000	
Σ	No o		704	715	717	719	75 43 44	
	24		73.1	73 5	73.7	.758	0.00 0.03 0.04	
	23 24		73.2	73.7	73.9	.772 .758	0.10 0.00 0.09 0.03 0.04 0.04	
	22		73.5	74.0	74.2		0.00	
	20 21		73.8	74.2	74.3	.761	0.02	
	20		74.1	5 47	74.8	.746	0.17	
	19		74.4	76.1 76.9 77.7 77.8 77.4 77.1 77.3 77.0 76.4 75.7 75.0 174 5 74.2 74.0 73.7 73 5	75.2	.707 .726 .746 .761 .771	0.03 0.04 0.07 0.08 0.45 0.65 0.10 0.13 0.12 2.32 0.08 0.17 0.02 0.01 0.10 0.00 0.00 0.02 0.02 0.03 0.29 0.02 0.11 0.15 0.04 0.45 0.03 0.01 0.00 0.00 0.09 0.03 0.02 0.02 0.02 0.05 0.25 0.02 0.09 0.13 0.10 0.07 0.03 0.08 0.02 0.00 0.04 0.04 0.04	
	16 17 18 19		75.1	75.7	75.9	.707	0.45	
1	17		75.9	76.4	76.7		0.12 0.04 0.10	
Monthly Mean 2 of other Elements by Hour	16		76.2	77. 0	77.3	.757 .731 .706 .687 .683 .694	0.45 0.05 0.10 0.13 0.12 0.29 0.29 0.02 0.09 0.13 0.14 0.15 0.04	
nents	13 14 15		76.7	77.3	77.6	.687	0.10 0.11 0.09	
er Eler	14		9 9 2	77.1	77.6	. 706	0.05	
of oth	13		77.0	77.4	77.8	.731	0.45	
ean 12	12		77.5	77.8	78.2	.757	0.08	
h!y M	10 , 11		77.1	77.7	78.0	.779	0.07	
Mon	10		76.6	76.9	77.1	962.	0.04 0.02 0.00	
	60		75.7	76.1	76.1	.791	0.03 0.04 0.00 0.02 0.02 0.00	
	38		74.7		74.7	.777	0.03	
	0.		73.1	73.3	73.3	.758	0.01	
	90	1	72.5	73.0	73.1	.736	0.05 0.17 0.01 0.03 0.00 0.00 0.01 0.02 0.03 0.09 0.01 0.00	
	0.5		72.0	73.1	73.2	.724	0.00 0.00 0.03	
	04		72.7	73.1	73.3	.716	0.00	
	03		72.9	73.2	73.4	.722	0.00	
	02		73.1173.0 72.9 72.7 72.0 72.5 73.1 74.7 75.7 76.6 77.1 77.5 77.0 76 6 76.7 76.2 75.9 75.1 74.4 74.1 73.8 73.5 73.2 73.1	73.4 73.3 73.2 73.1 73.1 73.0 73.3 74.6	73.6 73.5 73.4 73.3 73.2 73.1 73.3 74.7 76.1 77.1 78.0 78.2 77.8 77.6 77.6 77.3 76.7 75.9 75.2 74.8 74.3 74.2 73.9 73.7	.750 .733 .722 .716 .724 .736 .758 .777 .791 .796 .779	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
	0.1		73.1	73.4	73.6	.750	0.00	
are	Code		wB (4.0 m)	WB 2.0 m)	wв 0.5m)	ВР	P 22	
Exposure	Site		<u> </u>	(6 112	129107)	оок	ıdIA	
	S							

0	0	'n				-
	3.950	3 0.7			-	-
75.0	. 833	4.08			******	_
67.5	.685	0.01				
269	720 .685 .833	48 0.01 4.08 0.75				
73.2	855	0.01				-
73.3	.863	0.02				
73.4	864	.01				
73.7	856	.13				
77.1 77.8 78.2 78.6 77.8 77.5 77.4 76.8 76.1 75.2 74.7 74.1 73.7 73.4 73.3 73.2 697 67.5 75.0 81.0	.884 .887 .873 .846 .821 .796 .779 .776 .785 .801 .820 .841 .856 .864 .863 .855	0.06 0.02 0.28 0.11 0.10 0.14 0.08 0.06 0.01 0.01 0.10 0.15 0.13 0.01 0.02 0.01				
4.7 7	820	.10 (
5.2 7	801	010				
6.1 7	785 .	010.				
6.8 7	776	0 90.				
7.4 7	. 622	0 80.				
7.5.7	. 962	.14				
7.8.7	821 .	.10 0				
8.6 7	846 .	0 11.				
8.2 7	873	.28 0				
7.8.7	. 583	0 70.				
7.1 7	884 .	.06				
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2.3 7.	Hele .	, E				
2.7 7.	. 118	1 20				
2.8 7.	. 228	.0.70				
72.8 72.8 72.7 72.3 72.4 73.6 75.8	. P41 . R22 . 811 . R06 . 812 . R29 . 850 . 870	(* 25 9,02 0; 03 1,91 0,04 1,10 0,03 0,00				
WB 72						
w (e. 5		55				
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SUMMARY OF METEOROLOGICAL OBSERVATIONS HOURLY DATA

NOVEMBER 1967

Monthly Summary*						
Monthly	-					
	24	6.7	5.9	8.8	.220	0.00
	23	7.0	6.0	5.3	.145	0.18 0.00 0.03
	22	5.9	4.2 4.6	4.2	.140	0.00
	21	s. 9		4.7 4.3	.130	0.00
	20	ر. د.	9.6		130	0.60 0.00 0.12
	19	5.8	9.6	3.4	.125	
	18		6. 4.	3,1	.130	0.00
ont		6.5 5.5 5.3	5.5	4.7	.130	0.23 0.60 0.11 6.06 0.00 0.01 0.12 6.09 0.00
S by H	16 17	6.5	6.0	5.7	.125	0.50 0.23 0.41
ement	15	5.8	6.4	5.8	.135	0.18
ther II	14	5.5	5.1	5.0	.130	
² of o1	13	6.0 5.9 5.5	6.7	6.5	.140	1.42 0.09 0.80 0.03 0.67 0.03
anges	2	0.9	4.7 6.7	4.9 6.5	135	0.20
Monthly Ranges ² of other Elements by Hour	=	4.1	5.3	5.4	.150	0.00
Υ.	10	5.8	4.1	4.4	.140	0.00
	60	5.1	4.0	3.4 4.4	.135	0.00
	90	0.9	4.1 4.0	4.0		0.00
	07	8.0			.130 .135 .145 .135 .135 .140 .135 .135	0.00
		8.0 8.0	5.6 5.8	5.1 5.3	.140	0.00
	02 06	7.0 7.5 7.9	5.2	5.0 , 5.2	135	0.00
	04	7.5	5.1	5.0	.135	0.00
	03	7.0	5.1	5.1	145	00.0
	0.2	6.7	5.0	5.1	.135	0.00
	10	9.9	6.0	6.1	.130	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
ure	Code	wB 4.0 m)	WB (2.0 m)	WB (0.5 m)	9.P	2 t d
Exposure	Site	<u> </u>	(911s) <u>G</u>			

6.0	.140	0.00	 	
5.0	.125	0.00		
6.5	.135	00.00		
6.0	.140	00.00		
5.3	.140	00.00	_	
4.1	.135	0.16		
4.9	.135	00.0		
4.	.160	00.00		
4. 80	.160	0.11		
6.8	.155	90.0		
6.0 5.3 5.2 5.0 7.2 5.2 6.8 4.8 4.8 4.9 4.1 5.3 6.0 6.5 5.0 6.0	.165 .175 .180 .160 .145 .156 .155 .160 .160 .135 .135 .140 .140 .135 .125 .140	08 0.00 0.72 0.23 0.23 0.49 0.06 0.11 0.00 0.00 0.16 0.00 0.60 0.00 0.0		
7.2	.145	0.23		
5.0	.160	0.23		
5.2	.180	9.72		
5.3	.175	0.00		
6.0	.165	0.08		
	.130	0.00		
6.0	.130	0,10 0,00 0,00 0,06 0,09 0,00 0,00 0,00 0.		
6.0 7.0 6.0	.145 .140 .145 .125 .130 .135 .130	00.0		
6. IJ	.130	0.04		
5.8	125	9.0%		
อก นา	24.5	0.00		
7.5 6.0	140	0.00		
7.5	.1.45	0.10		
WB 0.5 m}	85	S.		

in a constant property (1)

The property of the state of the state of the spate of the day at

Precipitation at 1.0 m. in open area (in.)

P2 - Precipitation under full canopy (in.)
P4 · Precipitation under open canopy (in.)

SUMMARY OF METEOROLOGICAL OBSERVATIONS

HOURLY DATA NOVEMBER 1967

2	No of Min. Mean Max.	14	Ξ	91	
Monthly Summary	Mean	S	m	و.	
thly S	Min.	0	0	0	
Mor	No of obs.	685	711	21	
	24	S	m	10	
	23	4	2	10	
	22	S	33	16	and the second of the second o
	21	9	m	12	
	20	- L3	æ	0.	gar i de un appear de de desentación
	19	-	æ	12	
	18	vs	 т		
	17	S	٣	9	
Hour	16	s	ო	61	To controlled to the first the second to the
l d by	15	9	4	S	
d Spee	14	- 9	4	4	· - · - · - · - · - · - · - · -
Monthly Means of Wind Speed by Hour (miles/hr.)	13	~ 'u	4	т т	
leans (mi	12	9	6.	و	
ithly N	11	. 9	4	4	weren
Mon	10	r,	٣	**	
	60	2	*7*	**	
	0.8	4	ю	2	_ u - 4994
		4		4	- 198
	0.6	5	е	0	
	0.5	S	3	0	
	04	S	m	0	
	03 :	- ग	en .	. 0	
	0.2	S	*:	. 0	
	01	- -	m	c	
Ğ.	level	39.0 m	32.0 m	30.0 ш	
Exposure		- E	3.2		Albrook (Forest alt
	Site				

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SUMMARY OF METEOROLOGICAL OBSERVATIONS

HOURLY DATA
NOVEMBER 1967

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ly Su										nthly mpute ges.							
Monthly Summary*										* No monthly summary was computed for the ranges.	<u> </u>						
	-									*		126- 1					
;	24	8	9	0								Φ			_		_
	23	6 .	υ¢	0							9	un					
	22	11	c o	0							7	v.					
	21	- 6	9	0							,a	x					
	20	6	9	0				-			ac ac	9					-
	19	- ·	9						***************************************		1.0	7					-
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la la	17	20	φ	-1	* 100						0.1	Œ					
ьу но	15		αo -	1							1.5	13					
peed	1.5	6	9	0							13	1.0					
/ind S hr.)	1.4	13	10	0							=	**					
pes of Wind (miles/hr.)	2	11	7	0							=						
Monthly Ranges of Wind Speed by Hour (miles/hr.)	12	11	00	0			-				1.3	<u>^:</u>					
ithly	=	7	^	0								garage.					
M	10	80	œ	0						ĺ							
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	0.8	9 1	7	0							x	5.					
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Exposure	-		21		. <u> </u>							.:		and the second			
ă	Site			(+)	HS 15016) ×0	oraik			15		. 1	1 1 1 1) + 214	tat.		

ALBROOK (Forest site) NOVEMBER 1967

							Rel	ative	Freque	ncies	ative Frequencies* of Wind Directions by	nd Dir	ection	s by H	our at	Hour at 39.0 m.	ė							
Ξ	0	02	6	5	8	8	6,	80	93	0	-	2	1	1	=	7	1,	<u>«</u>	0.	28	21	22	8	77
z	3.3	3.3		3.3		10.0	┸.				6.7	13.3	0.7		 -	10.3	3.4	3.4	3.4	3.3			3.3	3.3
NNE				3.3	3.3	3.3				6.7	6.7			-						3.3	3.3			3.3
NE	3.3	3.3	3.3	6.7			3.3		3.3			3.3		3.3	10.0				6.9		3.3	3.3		3,3
ENE	3.3	3.3	ა. ც				3.3	3.3	3.3				3.3	6.7									3.3	
ш	3.3		ευ .υ		3.3	3.3	10.0	10.0	3.3			3.3	10.01		3.3	3.4			3.4	3.3	6.7	3.3		
ESE							6.7		3.3			3.3	3.3	3.3		6.9							3.3	3.3
SE		3.3	3,3	3.3					6.7	6.7	10.0	3,3	6.7		3.3	6.9	6.9	3,4	-			3.3	3.3	
SSE		3.3									6.7			3,3	3.3	ж. Ф.	6.9	3.4						3.3
S			6.7	3.3				3.3		20.0	20.0	26.7	23.3	23.3	20.0	17.2	24.0					3.3		
SSW	16.7	23.3	6.7	13.3	20.0	3.3	6.7	16 7	16.7	20.0	16.7	20.02	16.7	13.3	13.3	10,3	6.9	6.9	10.3	15.7	3,3	20.0	13,3	13,3
sw	13.3	23.3	13.3	13.3	13.3	26.7	13.3	13.3	33.3	16.7	16.7	3.3	10.0	6.7	16.7	6.9	10.3	17.2	13.7	13,3	26.7	10.0	6.7	16.7
wsw	20.0	13.3	16.7	16.7		20.0	26.7	30.0	10.0	10.0		3,3		16.7	3.3	6.9	10.3	20.6	20.6	26.7	30.0	23.3	20.0	23.3
∌	20.0	13.3	23.3	20.0	3.3	16.7	20.0	-	10.0	13.3	6.7	6.7	13.3	16.7	3.3	13.7	24.0	20.6	20.6	13.3	13.3	20.0	26,7	16.7
WNW	3.3		3,3	6.7	10.0	3.3	3.3	6.7	10.0	33	6.7	6.7	3.3	3,3	10.0		3.4	13.7	10.3	6.7	6.7		3.3	3.3
2NZ	6.7	6.7	3.3	3.3	6.7	0.7		6.7			3.3			3.3	10.0	10.3		3.4	6.9	ري دي		3.3	10.01	6.7
NNN	6.7		6.7	3.3	3.3	3.3	3.3			3.3		6.7	3.5		3,3	3.4	3.4	3.4		6.7	3.3		3.3	
CALM		3.3	6.7	3.3	6.7	3.3	3.3	3.3										3,4	3.4	3.3	3.3	3.3	3.3	3.3
																						1 MPRES	MPRESORA B A 45575	:::

• Note: Due to rounding, percentage totals do not equal 1000.

ALBROOK (Forest site) NOVEMBER 1967

							2				747 3.0	1				6								
							Vera	2	ive riequencies. Of wind Directions by front at 32.0 m	icies.	1	, %)	echol	r ka s	inor.	0.26.1	Ë							
± Z	01	C2	03	0.4	63	90	07	80	60	10	=	12	13	4	-5	16	17	18	19	20	21	22	23	7.
z	13.3	3.3	3.3	16.7	3.3	3.3	10.0		6.7	3.3	6.7	6.7	13.3	10.0	3.3	6.9	6.9	10.3	10.3	10.0	6.7	16.7	6.7	10.0
N.CE	3.3		3.3					3,3		10.0		3.3		3,3	6.7	3.4	3.4				6.7	3.3	6.7	ς; (3)
NE	3.3	3.3	6.7			3,3	3.3				6.7	3,3		3.3	5.7			6.9	6.9	6.7	3.3		3.3	3.3
ENE		3.3		3,3		3.3		6.7	3.3	°3	6.7		3,3		333	3.4			3.4					
ш		3,3	3.3	3,3			3.3	3.3	3.3			3	3.3		3.3	ъ.				3.3		6.7	3.3	3,3
ESE	3.3					3.3	3,3	6.7	3,3			3.3	3.3	6.7				3.4			6.7			
SE			3,3			6.7	3,3		3,3				6.7			10.3	3.4	3,4						
SSE		3,3					3.3		6.7	33		10.0	3,3				3.4		-+					
×		3,3		3.3						13.3	26.7	13.3	23,3	23,3	23,3	20.6	17.2			3,3				
MSS		3.3	3,3							n	3,3	6.7	3.3			3,4		3.4		3.3		3,3		
3,				3,3	6.7	!		1	6.7	13.3	10.0	10.0	6.7	3.3	-	-	ı	ى 4		6.7				
wsw.	er.	٤,	3,3	•	•	3.3	6.7	ъ.		3.3	6.7	6.7		6.7	6.7	3.4			3.4			6.7	3.3	3.3
i	14. 14.	0.1	~	en en	200	т г	6.7	3.3	-	3.3	6.7		10.0	6.7	10.0	3.4	13.7		10,3	10.0	6.7	3.3	3.3	13.3
W.W.W.	I~.	-	.7	1.7		1 4.3	7.3	6.7	16.7	6.7	6.1	€. /	3.3	10.0	13.3	œ.	6.9	5	10.3		3.3	3.3	13.3	6.7
NZ I	l·	7	31.7	11.7	5.30	25.	73.3	0.0	14.7	20.1	10.0	0.0	13.3	6.7	10.0	24.0	24.0	30.9	17,2	30.0	33,3	26.7	26.2	20.0
3//		17:	. 7	2.1.7	**	16.7	2n 0	20.0	23.3	13.3	10.0	6.7	6.7	13.3	13.3	10.3	10.3	24.0	36.3	29.0	20.0	20.0	23.3	23.3
CALM			13.3	13.1		-	10.0	5.7	3.3	3.3		10.01		6.7		3.4	10.3	10.3	6.9	6.7	13.3	13,3 10,0	10.0 13.3	13,3
																						IN PRE	IMPRESORA 6 A 45615	****

. Notes that to to achies i preentage totals do not equal 1000

CHIVA CHIVA iOpen site) NOVEMBER 1967

																		1		-	r	-	H
1	10	03	03	2	0\$	90	07	80	60	10	=	12	13	14	'`	91	17	18	19	20	12	22	23 24
2	0	, ,	0			13.7	13.3	6.7	5.7	10.3	6.9	27.5	17.2	16.7	10.0	10.0	10.0		6.9	13.3		3.3	10.0
2	0 6	6.7		3.3	3.3	+				-				3.3	3.3		3,3	6.7			3.3	3.3	+
1 12	2			7.7			~	-		3.4			3.4	6.5		3.3		ლ ლ	6.9		6.7	3.3	9
EN F			2							3.4								3.3	3.4		1	3.3	6.7 3.
ш		-			9.3		6.7			3.4	6.9		6.9								3.3	3.3	+
FG!			3.3													3.3			3.4		-+	1	3.
SE				3.3					3.3	6.9	3.4	6.9	6.9	6.7	6,7	3,3	6.7	3.3		3.3		3.3	3.3
SE	3.3	3.3							3.3		3.4	6.9	3.4	6.7		6.7		3.3		3.3	+		+
S		3.3		3.3					6.7		13.7	13.7	20.6	13.3	16.7	6.7	6.7				1	+	+
SSW		ı	ļ		:	3.4		3.3								3,3	3.3	3.3				_	+
SW		3.3								6.9				-		3.3				3.3			+
wsw		L_						3.3		_				3.2	3.3		6.7		3.4		T	+	+
B	3.3	3.3		6.7	0 . 1		6.7			٠ 8	6.9	3.4	3.4			3.3	3.3		6.9	6.7		6.7	3.3
N.V.B	~	~	7. 7		6.7		6.7	6.7	6.7		10.3	ε. 4.	6.9			6.7	6.7	6.7		3.5	3.3	16.7	6.7
Z) ""	50.00		4.4	46.7	<u> </u>	0.04	5n.0	34.3	34.3	37.8	24.0	17.2	30.0	40.0	33.3	33.3	37.8	34.3	33,3	60.09	83°	50.0 46.7
3/7	1.7	10.4	· ·		10.7	17.2	16.7	20.0	26.7		24.0 10.3	13.7	13.7	13.3	_	20,0 16.7	13.3	23.3	17.2	23.3	16.7	16.7	10.0 10.
		-	-	-	-	17.7	3.3	6.7	6.7	c							6.7		10.0 17.2 10.0	10.0	6.7	6.7	10.0 10.

· Note: Due to rounding, percentige totals do not equal 100%

CHIVA CHIVA (Open site) NOVEMBER 1967

NNE N'E ENE ESE	10.0 10.0 3.3 6.7 6.7	10.0		03 04 3.3 6.7 3.3 10.0 6.7 3.3 6.7 3.3	05 20.0 6.7 3.3 3.3	06 6.7 6.7 6.7 3.3 3.3	100	6.7	6.7	10 20.0 3.3 3.3	10.0 10.0	(%)	3.3 6.7 7.7 6.7	13.3	7 08 09 10 11 12 13 14 15 .7 6.7 6.7 20.0 10.0 13.3 3.3 13.3 10.0 1 .0 6.7 3.3 3.3 3.3 3.3 1.7 3.3 .7 3.3 3.3 3.3 5.3 6.7 3.3 .6 7 10.0 3.3 .7 3.3 5.3 6.7 3.3	3.3	6.7	8 4. 8 3 4. 8 4. 8 4. 8 4. 8 4. 8 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3.3 6.7	20 16.7 3.3	3. 3. 5. 2.	22 3.3 3.3 3.3	2: 6.7 10.0 1 3.3 3.3	3.3 3.3 3.3 3.3
SE SSE S	3.3	3.3	3.3	10.0			6.7	3.3	3.3		3.3		N 0	3.3	m m :	3.3	6.7	3.4	6.7	3.3	3.3	3.3	3.3	3.3
SSW SW WSW	5.7	а. В	3.3	ъ. Б	3.3	. s			3.3			2 6	D m	10.0	3.3	6.7	10.0		6.7	13.3	6.7	3 3	3.3	
W W W N W N N W CALM		20.0 10.0 13.3 13.3 10.7 10.7	6.7 1 20.0 1 16.0 1 11.0 1 11.0 1 1 10.0 1 1 10.0 1 1 10.0 1 1 10.0 1 1 10.0 1 1 10.0 1 1 1 1	16.7 19.0 10.0 10.0 13.3	16.7 10.0 20.0 10.0 10.0 10.0 10.0 10.0 10.0	10.0 20.0 20.0 3.3	3.3 6.7 13.3 10.0 13.3 10.	3.3	3.3 30.0 3.3 10.0	13.3 6.7 23.3 16.7	13.3 10.0 26.7 1 11.3.3 1	6.7 3.3 13.3 13.3 13.3	3,3 16.7 16.7 13.3 1	6.7 6.7 33.3 3.3 13.3	3.3 3.4 13.3 13.3 10.0 20.0 10.0 16.7 13.3 10.0 10.0		6.7 3.3 10.0 23.3 13.3 13.3	3.4 13.7 20.6 24.0 10.3 2	3.3 10.0 13.3 20.0 20.0 26.7	13.3 3. 6.7 10. 20.0 30. 3.3 13.	3 3 0 0 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 2 2 3 7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3.3 26.7 26.0 3.3

SUMMARY OF NON HOURLY DATA

NOVEMBER 1967

	Summary of Ele	ments with Non-nourly F		f Observation		
Site	Element, Units and Exposure	Description	Number of Obs.	Minimum Value	Mean or Total Value	Maximum Value
site)	Evaporation ³ (in. at 3 levels)	Piche (26.5 m) Piche (13.5 m) Piche (0.5 m)	21 17 7	0,00 4 0,006 0,006	2.201* 0.688* 0.213*	0.232 0.692 0.061
Albrook (Forest site)	Precipitation from Raingauge Network ² (in. at 1.0 meters)	Gauge # 1 Gauge # 2 Gauge # 3 Gauge # 4 Gauge # 5 Gauge # 6 Gauge # 7 Gauge # 8	33 35 34 33 33 34 32 33	0.01 0.01 0.01 0.01 0.01 0.01 0.01	6.16* 11.02* 8.74* 8.37* 8.49* 8.95* 9.91* 7.47*	1.05 1.32 1.20 1.14 1.19 1.08 1.33 0.91
Ch.va Chiva (Open site)	Evaporation ³ (in. at 0.5 meters)	Piche	24 23	0.006	3.179* 4.187*	0.299

^{2 -} Six hourly observations3 - Daily observations

* Total Values